

Response Under 37 CFR 1.116
Expedited Procedure
Examining Group 2114

Remarks

Claim Objections

The claim objections raised in the Advisory Action mailed 12/08/2005 have been dealt with in this Further Amendment After Final Action. Additional changes in claims 22 and changes in claim 24 have been made in this Further Amendment After Final Action.

Claims 10, 22, and 24 have been amended to avoid missing antecedents. In claim 10, term "the agreement" has been corrected to "agreement". In claim 22, the terms "the output data" and "the input section" have been amended to "output data" and an input section", respectively. These changes should overcome the claim objections.

Further, claim 4 has been amended to clarify that the bus unit which reads back the buffer is in fact a part of the peripheral monitoring unit.

Claim Rejections

Claims 1-24 are pending in this application, and they are rejected.

Claim Amendments

Claim 1 has been amended by introducing the features of claims 3 and 5. Accordingly, claim 1 now additionally defines that the peripheral safety-related unit of the system reads back the temporarily stored data via a bus unit and comprises a further bus unit so that the peripheral safety-related unit has redundant input channel and thus redundantly monitors the connected control process so as to detect a fault.

Claims 19 and 22 have been amended introducing the same features, whereby the features of claim 20 (corresponding to claim 3) have been included in claim 19.

Novelty and Inventive Activity of Claim 1

The Examiner asserts that claim 1 would be anticipated by the system disclosed in

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Eastvold. This assertion is based on the interpretation of the master DTU 34 and the monitoring unit 16 in combination as disclosed in col. 9, lines 33-37 interpreted as both a control unit and a peripheral monitoring unit.

However, we respectfully disagree with the Examiner's point of view. Eastvold's system monitor 16 does not directly participate in the data transmission via the network 24, as this unit receives data via a 25-pin cable from the master DTU 23 (Fig. 1, col. 5, lines 6-9 and 24-26).

In particular, the system monitor 16 does not become a bus sharing unit just by combining it with the master DTU into one unit. In Eastvold, col. 9, lines 33-37 merely disclose that the master DTU could be replaced by a circuitry inside the system monitor. Even in this case, however, the system monitor 16 would still receive data only via a 25-pin connection from the master DTU 34. Accordingly, the system monitor is not a bus sharing unit with respect to the ring shaped fiber optical network 24 that connects all DTU's.

Moreover, it is submitted that the term "safe state" used in the claims is a technical term with a particular meaning in the art of safety engineering. This term is defined in industrial standards EN 954-1 and IEC 61508-2. If data are merely suppressed by a CRC check, the current state of the respective destination unit cannot be considered as safe. For example, if the unit would control a medical x-ray apparatus, this apparatus would continue to take radiograms as long as it would receive a correct data telegram. Of course, this would have severe consequences for a patient. In this case, initialization of a safe state would be a protected switch-off.

It is further submitted that the features of claim 3, which are now included in claim 1, are neither known nor obvious from Eastvold. Amended claim 1 now defines that the peripheral safety-related unit reads back the data temporarily stored in the peripheral safety-related unit via

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a bus unit thereof. The features of reading back temporarily stored data is used to check directly whether the bus transfer has worked correctly. The optical receiver/transmitter 54 known from Eastvold, however, merely converts optical to electrical signals. Obviously, this optical receiver/transmitter 54 is unable to read back data stored in the respective DTU.

Moreover, the peripheral safety-related unit of the system according to claim 1 comprises a further bus unit, so that the peripheral safety-related unit has redundant input channels and thus redundantly monitors the connected control process. This feature cannot be obvious from Dawson and Eastvold. In particular, it is submitted that Dawson's Fig. 10 does not teach redundant input channels, as the lines 212, 312 do not transmit redundant data to the registers 330, 340. As it is described in the passage of Dawson cited in the Office Action (col. 21, line 44 – col 22, line 10), the register 330 receives a reference pattern via line 312, whereas the input register 340 receives the input data stream to port logic 70 as shown in Fig. 9. The reference pattern is a standard header block for all messages of interest that are recast over the network (see col. 21, lines 47-50). Accordingly, incoming data are compared with a predetermined header, rather than comparing data received redundantly from the same data line.

Accordingly, the inventive system as defined in claim 1 cannot be derived by combination of Eastvold with Dawson.

As independent claims 19 and 22 include features corresponding to the features of claim 1, namely to read temporarily stored data via a bus unit thereof, which are monitored and detected by a checking logic of the peripheral safety-related unit, and to provide redundant input channels to redundantly monitor the connected control process and detect a fault, the subject matter of these claims is novel and inventor over Dawson and Eastvold, also.

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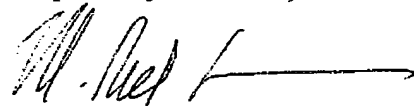
Novelty of Dependent Claims and New Dependent Claims

As the independent claims are new and inventive over the cited prior art, the same also holds for the dependent claims. Moreover, although the DTU's of Eastvold may have a buffer, it is not disclosed therein that the content of the buffer is the read back by the bus unit, whereby both the buffer and the bus unit are components of the peripheral safety related unit. This difference now should be evident from the clarification of claim 4. Accordingly, claim 4 is new.

A RCE is submitted with this Further Amendment After Final Action. A second and third-month extension of time in which to respond to the outstanding Office Action is hereby requested. PTO-2038 is enclosed authorizing credit card payment in the amount of \$900 for the prescribed Large Entity second and third month extension fees, as well as the \$790 RCE fee, for a total of \$1,690. The first month extension fee was paid with the filing of the Amendment After Final Action on 11/14/2005.

Please enter this Further Amendment After Final Action. Wherefore further consideration and allowance of the application as amended is respectfully requested.

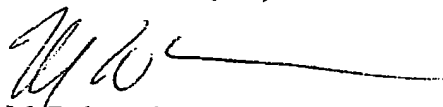
Respectfully submitted,



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CERTIFICATE OF SUBMISSION BY FACSIMILE TRANSMISSION:

I hereby certify under 37 CFR §1.8 that this correspondence is being submitted to the Commissioner for Patents, Mail Stop AF with RCE and Fee, P.O. Box 1450, Alexandria, VA 22313-1450 on January 13, 2006, fax number (571) 273 8300.



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